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ABSTRACT

A theoretical framework for media and methods selection cannot yet be definitively set forth. However, establishing performance objectives, and then interpreting them into training objectives will help to focus attention on critical factors in the learning process. (Author/MC)

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Theoretical Framework: Some Basic Issues Related to Methods and Media Selection

Ronald W. Spangenberg

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PREFATORY NOTE

This paper was presented at the U.S. Continental Army Command Training Workshop at Fort Gordon, Georgia by Dr. Spangenberg, a Senior Scientist at HumRRO Division No. 2, Fort Knox, Kentucky. The research was performed under Work Unit MEDIA, Improving Media Implementation in Army Training Programs.

THEORETICAL FRAMEWORK: SOME BASIC ISSUES RELATED TO METHODS AND MEDIA SELECTION

Ronald W. Spangenberg

A discussion of the theoretical framework of methods and media matrices is much like a discussion of the unicorn—in spite of the fact that I can show you a picture of a unicorn, we all know they don't exist.

Dr. Briggs has rightly stated in his book (1) that it is not possible to make optimum media selections by simply following a chart, or table, or "cookbook" that would say essentially, "For this competency identify the type of learning listed in a column, find its intersection with type of learner listed in a row, and use the medium named at the intersection." This statement adequately summarizes the present state of the art of methods and media matrices. No specific sequence of steps that will ensure optimal methods and media selection has yet been developed. Even to select adequate methods and media is a complex problem-solving situation that requires as yet unspecified knowledges and skills. Our business is to provide usable, if not optimal, solutions as we apply our individual experience, knowledges, and skills to the problem of methods and media selection.

Matrices can be a very helpful memory device when we begin to solve the problem of methods and media selection. Frequently, a matrix will call our attention to critical characteristics. It may provide an unfamiliar alternative. Most often, a matrix will quickly reduce the universe of possible options to a manageable size, so we can then compare various trade-offs between options. For example, speaking to this last point, one Army matrix puts seven different factors that must be considered on a method selection matrix (2, 3). It then recommends a method for each factor (although it does not show trade-offs between factors). The most recent media selection matrix by Gerlach and Ely (4) uses an unweighted matrix layout to ensure consideration of six significant factors. They do not solve our method and media selection problem but they help us not to forget something important as we put together a solution.

Every systems engineer operates within a given set of constraints (see Figure 1) in solving method and media selection problems. There seems to be fairly general agreement among Army people that the results of task analyses can be grouped into three categories as we create work performance or *job objectives:*

Specific tasks	Knowledges, skills, attitudes.
Generalized skills	Knowledges, Skills, attitudes.
Generalized behavior	Knowledges, skills, Attitudes.

I am not convinced that we have taken these job objectives seriously enough in our design of training programs. As we look at our job objectives, seriously consider the implications they have for training. Our generally accepted job objective categories have built-in suggestions as to the possible training problems: knowledges — skills — attitudes.

Training objectives based on job objectives could then be categorized into simple tasks (knowledges), mental or motor skills (skills), and social behaviors (attitudes). In general, the training emphasis in the respective cases would be upon:

Response selection—doing the right action within the appropriate time frame.

Response syntheses—gaining proficiency in performing an action.

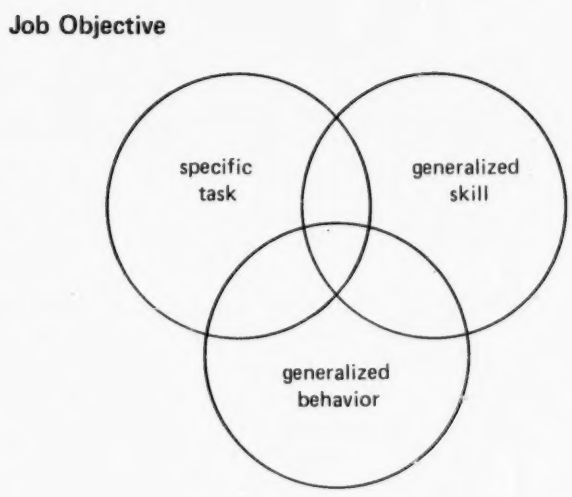

Figure 1

Exhibiting patterns of response selection—doing the appropriate action in the given context.

At an overall level, the training emphasis implies differential weighing of selected factors in the learning process that are considered in selecting methods and media. Let us visualize the learning process as shown in Figure 2. First, there is a presentation of information to the learner (I). The presentation factor includes both introductory and content information—typically, this is what the learner receives in a traditional classroom lecture approach. Next, there is an opportunity to practice or apply the information in some task (II). In a traditional classroom lecture this may be the instructor's question. The first result of the application phase is that the learner is able to evaluate for himself both the effort itself and the mental processes involved (III). This self-evaluation is termed feedback in the model. However, the learner frequently is provided other evaluation—the instructor, the answer sheet, his peers (IV). This evaluation which the learner receives also provides feedback to the learner. Note further that the instructor may modify his presentation following his evaluation of the application performance. The final result is the learners satisfactory performance of the training objective (V).

Since this presentation is intended to generate ideas for a workshop, here are three questions for discussion.

(1) The Army has done an excellent job in demanding and getting a reasonably high quality level of presentation when using trained instructors. Numerous directives have emphasized the application requirements, and thus, implicitly, the learner feedback requirement has been considered. However, our typical instructional design does not always integrate the two kinds of information requirements. We have either an information presentation-oriented matrix (such as the excellent one developed at Redstone (5)) or a simulator-oriented matrix such as the one by either Miller (6) or Demaree (7). The first question is: "Why don't we always consider both the presentation and the feedback information requirements in designing a learning program?"

(2) The traditional role of the classroom instructor has been to select appropriate information, to organize this information, and to effectively present the information. But look what systems engineering does (Figure 3). The classroom instructor typically does not select the information, this is done by the systems engineer. He seldom organizes it, the systems engineer does. In fact, he may not always present it; instead he

The Learning Process

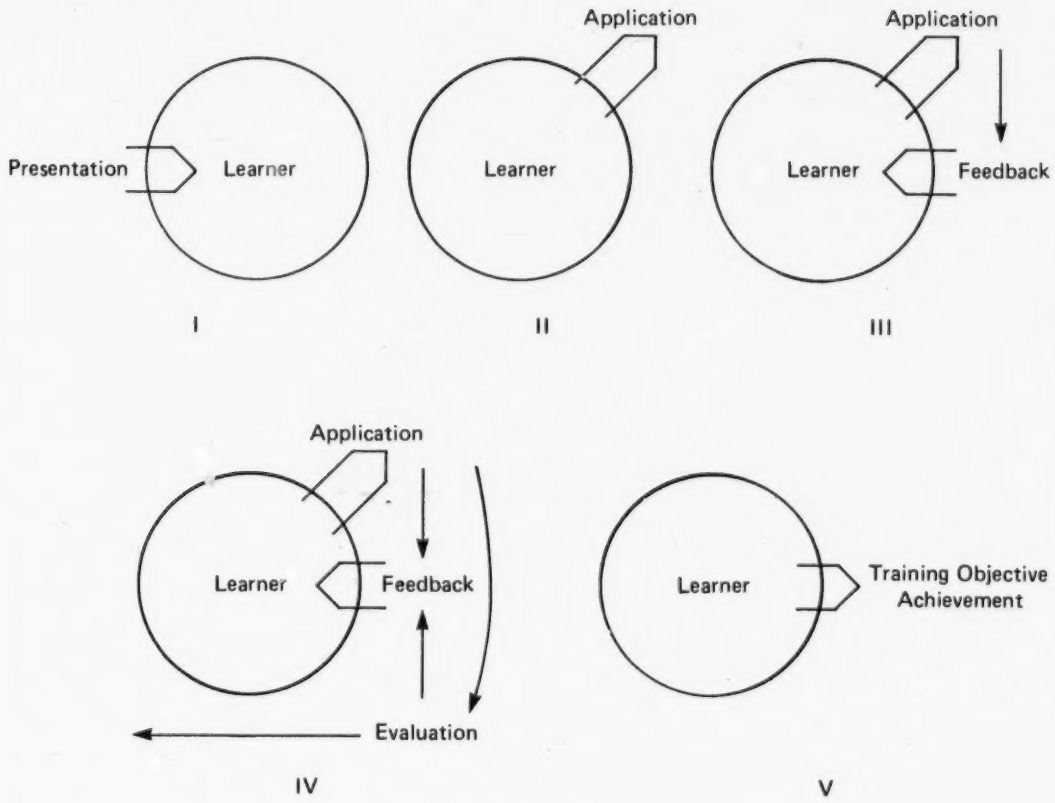

Figure 2

may serve only a control function, if the systems engineer determines that another mode of presentation would be superior. It seems that the role of the classroom instructor may require some redefinition. The second question for discussion is: "What should be the functions of a classroom instructor in a modern Army training program?"

Role of the Instructor ?

SELECT	ORGANIZE	PRESENT
SELECT	ORGANIZE	PRESENT ?

Figure 3

(3) The final question for this workshop is possibly a restatement of the first two. If, as a systems engineer working with the Training Analysis Information Sheet (Figure 4), I determine Class A will be taught by a classroom instructor and select the lecture method, I will then in Column C, Methods of Instruction, place an L for Lecture. This classroom instructor turns out to do a tremendous job—but he gets orders and I have no replacement. Now make a big assumption. Let us assume that I can put this

Training Analysis Information Sheet
(CON Reg 350-100-1)

File Number: _____

1. COURSE: _____ DATE: _____

2. Training Objective (task or action, conditions, and standards):

3. Learning Analysis (List and describe in the form they will be learned by the students):

a	b	c	d	e	f	g
Learning Element	References	Methods of Instruction	Media	Training Equipment Material	Facility	Estimated time

Figure 4

tremendous instructor on film or on videotape. Now Column C of the TAIS will read either Film or TV. There should be, however, no difference in learning from any of these three modes by a student attending to this lecture.

In one case we have the classroom instructor, in the other two we have a mediated instructor. Now let us go a step further. With high school and college students, it has been shown that we can get comparable learning of lecture information by a tape recorder. At college levels the information has been adequately learned without even going to class. (See Figure 5.) Now my final question: "Given a systems engineer who selects, organizes, and determines the way that the information will be provided to the learner, who is the instructor?"

Media Selection

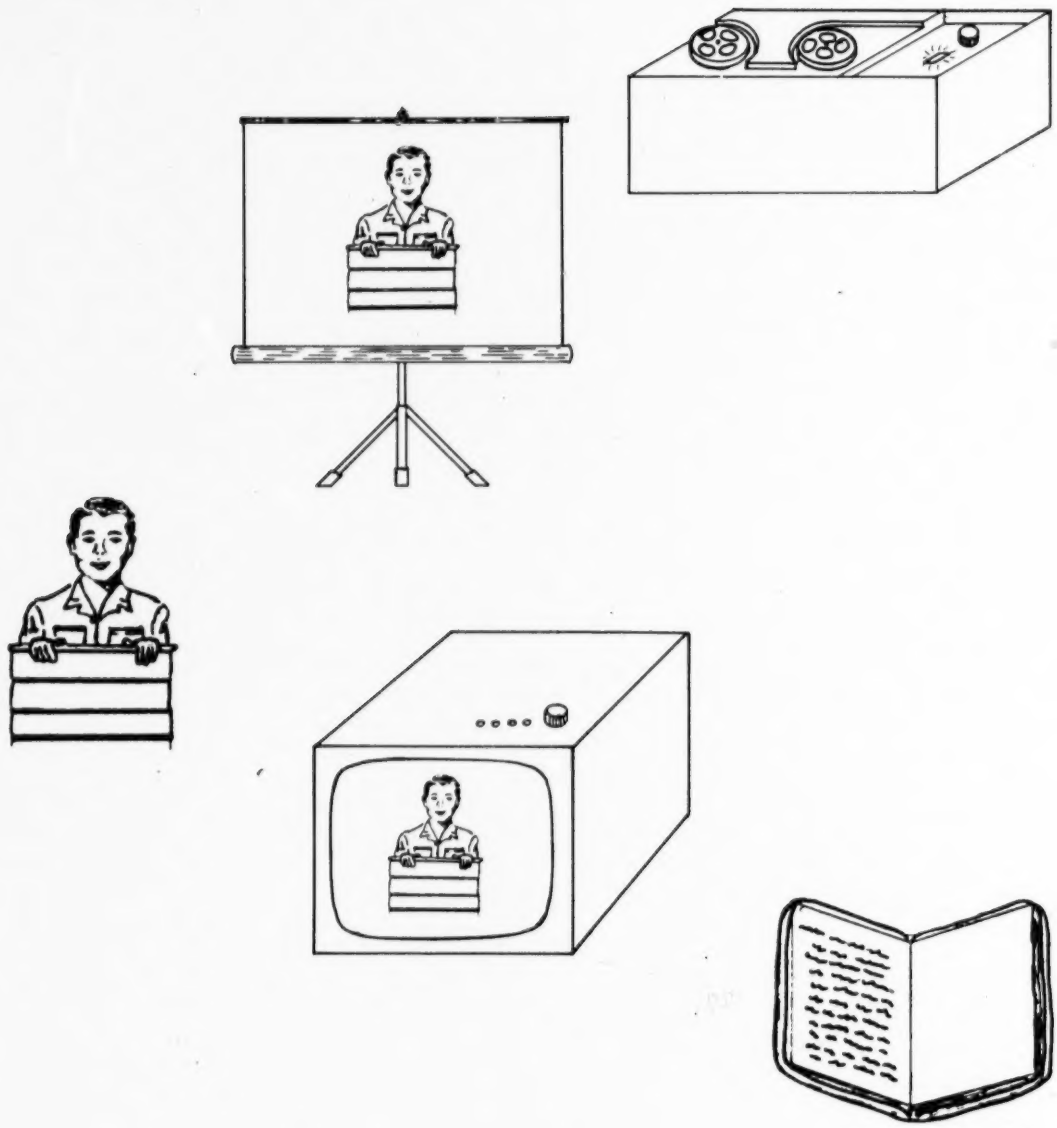

Figure 5

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13. ABSTRACT

The basic thrust of this presentation is that a theoretical framework for media and methods selection cannot yet be definitively set forth. However, establishing performance objectives, and then interpreting them into training objectives will help to focus attention on critical factors in the learning process.

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